

REMARKS

In accordance with the foregoing, claims 1-15 are pending and under consideration.

In the Office Action dated January 6, 2009, the Examiner rejects claims 1-15 of the present application as being obvious over U.S. 7,220,795 (**Miyoshi et al.**) further in view of U.S. 5,965,655 (**Mordecai et al.**) Specifically, the Examiner states as follows:

"given that compositions of Miyoshi et al have a multi-phased morphology wherein the polyamide component forms the continuous phase, one having ordinary skill in the art would have expected patentee's shaped articles formed from the composition meeting the material requirements of the present claims, said composition clearly being within the purview of the general disclosure of the reference, to have a surface area feature."

However, contrary to the Examiner's understanding, a shaped resin article of the present application cannot be obtained by the technique disclosed by **Miyoshi et al.** In order to substantiate this, Mr. Takaaki Miyoshi who is one of the inventors of the present application has made observations on the necessity of a partially hydrogenated aromatic vinyl/conjugated diene block copolymer having a number average molecular weight of from 200,000 to 300,000 for producing the shaped resin article of the present invention, with reference to Example 5 and Comparative Example 2 of the present application. The method and results of the observations are as described in **Exhibit 1** of the accompanying Declaration executed by Mr. Miyoshi.

From the observations of Exhibit 1 of the accompanying Mr. Miyoshi Declaration, it can be fairly concluded:

(1) that the shaped resin article of the present invention obtained in Example 5 --which comprises a polyamide (A) comprising at least two different polyamide components, a polyphenylene ether (B), and a partially hydrogenated block copolymer (C-1) having a number average molecular weight (Mn) of from 200,000 to 300,000, and which has a polyamide area ratio of at least 80 %-- has an excellent matte surface, whereby the shaped resin article exhibits excellent coating adhesion strength without sacrificing the sharpness of an image reflected in the coating (Observations of item 3 of Exhibit 1);

(2) that, on the other hand, when the above-mentioned block copolymer (C-1) is replaced by a block copolymer having an Mn of less than 200,000 (Comparative Example 2), the matteness of the surface of the shaped resin article becomes poor, thereby leading to poor coating adhesion strength (Observations of item 3 of Exhibit 1);

(3) that, although **Miyoshi et al.** mentions a molecular weight of 10,000 to 500,000 at column 8, line 65 to column 9, line 5, in each of the working examples of **Miyoshi et al.**, a shaped resin article is produced using, as an impact modifier, only a block copolymer having an Mn of less than 200,000 as in the case of Comparative Example 2 of the present application and, hence, the shaped resin articles obtained in the working examples of **Miyoshi et al.** also have poor matte surfaces and poor coating adhesion strength (Observations of item 4 of Exhibit 1);

(4) that, in addition, **Miyoshi et al.** have no teaching or suggestion about the importance of the use of a block copolymer having an Mn of from 200,000 to 300,000 and the importance of the polyamide area ratio of at least 80 % (Observations of item 4 of Exhibit 1); and

(5) that, from items (1) to (4) above, it is apparent that the shaped resin article of the present invention cannot be obtained by the technique disclosed by **Miyoshi et al.**

With respect to **Mordecai et al.**, as pointed out by the Examiner, this reference discloses the use of wollastonite. However, as discussed in item 2 of Exhibit 1 of the accompanying Mr. Miyoshi Declaration, this reference is directed to a resin composition for providing a shaped resin article having a Class A surface, namely a glossy, smooth and polished surface having a high distinctness of image (Abstract and col.1, lines 23-27 and 30-34 of **Mordecai et al.**). This reference has no teaching or suggestion about the importance of the use of a block copolymer (C-1) having an Mn of from 200,000 to 300,000 and the importance of the polyamide area ratio of at least 80 %.

In fact, in each of Examples 25 to 33 of **Mordecai et al.**, a styrene-ethylene/butylene-styrene block copolymer (Kraton G1651) having a number average molecular weight of 181,000 which is lower than the range (200,000 to 300,000) recited in claim 1 of the present application is used.

As an evidence showing the number average molecular weight (Mn) of the above-mentioned "KRATON G1651", attached hereto are a copy of U.S. Patent No. 5,723,543 (Exhibit 2) and a copy of US Patent No. 5,932,648 (Exhibit 3) each of which is owned by Shell Oil Company. The "KRATON" polymers including "KRATON G1651" were first developed and produced by a chemical division of Shell Oil Company and, hence, the data on "KRATON" polymers shown in Exhibits 2 and 3 can be regarded as data provided by the manufacturer of this polymer.

Exhibits 2 and 3 describe the molecular weights of several "KRATON" polymers.

Specifically, as footnotes for Table 1 shown on col.5 and 6 of Exhibit 2, Exhibit 2 has the following descriptions:

“¹KRATON® G1651 (Shell), a SEB-S block copolymer with a molecular weight of about 181,000”, and

“²KRATON® G1650 (Shell), a SEB-S block copolymer with a molecular weight of about 66,700”.

Exhibit 3 has the following descriptions:

“A low viscosity, low volatile organics content fumigation adhesive composition which has at least 65% by weight solids, said composition comprising:
a) 100 parts by weight (pbw) of a blend of a hydrogenated styrene-diene triblock copolymer, having a weight average molecular weight of 30,000 to 60,000 and a polystyrene content of from 10 to 40% by weight of the polymer” (emphasis added) (claim 1); and

“KRATON® G1650 A hydrogenated styrene butadiene triblock copolymer having a molecular weight of 67,000 and a styrene content of about 30 percent” (emphasis added)(Table 2-continued on col. 8 of Exhibit 3)

“KRATON® G1652 A hydrogenated styrene butadiene triblock copolymer having a molecular weight of 50,000 and a styrene content of about 30 percent” (emphasis added)(Table 2-continued on col. 8 of Exhibit 3)

Thus, Exhibit 2 describes that the “molecular weight” of KRATON G1651 is “181,000” and the “molecular weight” of KRATON G1650 is “66,700”, whereas Exhibit 3 describes that the “weight average molecular weight” of KRATON G1650 (hydrogenated styrene-diene triblock copolymer) is “67,000” which is substantially the same as the weight average molecular weight “66,700” described in Exhibit 2. Therefore, it is apparent that the “molecular weight” of KRATON G1651 described in Exhibit 2 is on the weight average basis.

Thus, the number average molecular weight of KRATON G1651 is 181,000 at the highest, and is very likely to be lower than 181,000 since the molecular weight distribution (Mw/Mn) of such a styrene-diene triblock copolymer is generally greater than 1.0.

As already mentioned in item 2 of Exhibit 1 of the accompanying Mr. Miyoshi Declaration, the reason for the use of such a block copolymer having a relatively low molecular weight is that it has conventionally been believed that a shaped article needs to have a smooth surface to form thereon a coating having excellent sharpness of an image reflected therein.

As substantiated in item 3 of Exhibit 1 of the accompanying Mr. Miyoshi Declaration, when a shaped resin article is produced using only a block copolymer having an Mn of less than

200,000, such as KRATON G1651 used in Mordecai et al., the resultant shaped resin article has a poor matte surface and a poor coating adhesion strength as in the case of Comparative Example 2 of the present application.

In addition, in none of the Examples of Mordecai et al., a shaped resin article is produced using at least two different polyamide components.

"An additional 31 parts of a nylon component specified in the table were fed at the downstream addition port.....

.....
The polyamide component designated as nylon 6,6 was NP-10,000 from Nylon Polymers. The nylon 6 was Nycoa 471 from Nylon Corp. of America.

The filled compositions were prepared in the same fashion as set forth in the previous paragraph, except the filled compositions consisted of a blend of 40 parts of the poly(2,6dimethyl -1,4-phenylene ether), 36 parts of the nylon 6/6, 10 parts of the Kraton G-1651, 0.7 parts of citric acid, and 14 parts of the filler, which is as set forth in Table 5 below with the results of the tests run on the Examples, namely Dynatup Impact, coefficient of thermal expansion (CTE), DOI and tensile elongation." (emphasis added)(col.19, line 26 to col.20, line 12)

(It should be noted that "nylon component" is not actually specified in Table 5.)

As substantiated in Example 1-4 and Comparative Example 1 of the present application (see Table 1 on page 91 of the present specification), even if block copolymer (C-1) having a specific molecular weight is used, when only one type of polyamide is used, the polyamide area ratio of at least 80 % cannot be satisfied and the resultant shaped resin article has a poor matte surface and a poor coating adhesion strength.

Thus, for achieving the excellent effects of the present invention, all of the following three features (1) to (3) are simultaneously satisfied:

- (1) use of at least two different polyamide components;
- (2) use of partially hydrogenated block copolymer (C-1) having a number average molecular weight of from 200,000 to 300,000, and
- (3) the polyamide surface area of at least 80 %.

However, neither **Miyoshi et al.** nor **Mordecai et al.** have any teaching or suggestion about the combination of the above-mentioned three characteristic features (1) to (3) and excellent effects achieved thereby.

Therefore, it is apparent that the present invention is not obvious over Miyoshi et al. even in view of Mordecai et al.

Serial No. 10/553,209

From the foregoing, it is apparent that none of the cited references has any teaching or suggestion about the essential features of the present invention and excellent effects thereof.

It is believed that the present application is now in condition for allowance.

Reconsideration and early favorable action on the claims are earnestly solicited.


Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

STAAS & HALSEY LLP

Date: July 6 2009

By: 
Mark J. Henry
Registration No. 36,162

1201 New York Avenue, N.W., 7th Floor
Washington, D.C. 20005
Telephone: (202) 434-1500
Facsimile: (202) 434-1501